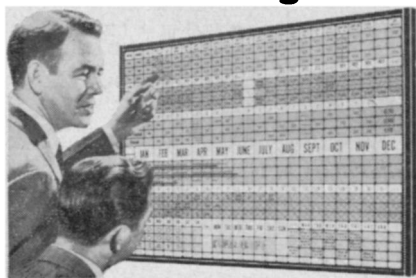


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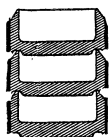
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INVENTION

Patents of the Week

A super-cold refrigerator that can cool materials close to absolute zero and uses a superconductive bar as its "working fluid" earned a patent—By Elizabeth Hall

➤ A SUPER-COLD refrigerator that could be used in studies leading to improved lasers, masers and other physics and electronic systems received patent 3,108,444 from the U.S. Patent Office.

Invented by Dr. David Kahn of the Martin Company's Research Institute of Advanced Studies (RIAS), Baltimore, Md., the refrigerator will be used to reduce materials as low as the temperature of liquid helium, the only element that remains liquid very close to absolute zero, which is 459.7 degrees below zero Fahrenheit.

The refrigerator operates the same way as the ordinary household refrigerator, except that it uses a superconductive bar as the "working fluid," instead of the freon used in most ordinary refrigerators.

A superconducting metal has no detectable electrical resistance at temperatures close to absolute zero. Once an electric current is started in a superconducting metal, it will seemingly go on forever, unless the temperature is raised or a very strong magnetic field is applied. Then the metal returns to a "normal" state.

Two systems for producing super-cold temperatures are given in Mr. Kahn's patent. In one system, a rotating wheel whose rim is a superconducting metal moves from a high temperature reservoir of liquid hydrogen to a lower temperature reservoir of liquid helium. The heat is transferred to the rim of the wheel as it touches the helium in the presence of a magnet and carried to the high temperature reservoir from superconducting to normal and back again.

In the other system, a superconducting bar connects the two heat reservoirs, one of liquid hydrogen and one of liquid helium, for instance, and a magnetic coil keeps part of the superconducting bar "normal" at all times. As the magnetic field moves from one end of the bar to the other, the heat is transferred from the low temperature bath to the high temperature one, where it is boiled away.

Retractable Police Light

A dome light for unmarked police cars that can be retracted or released as a policeman chases a speeder received patent 3,107,865. John V. Hostetter, a builder from Beltsville, Md., who invents for a hobby, designed the light because, he told SCIENCE SERVICE, "habitual speeders only slow down when they see the shape of the light on top of the car."

The light is set into the car's roof, over the back of the front seat to the right of the driver and could be taken for a person's head from a distance. Mr. Hostetter has received previous patents for a siding cutter for builders and has patents pending on

an electric mitre saw for cutting thin lumber and a hospital cup from which a person can drink without a straw.

Coffee Can Birdhouse

A Detroit inventor has come up with a use for empty coffee cans. Maurice Kerkhove received patent 3,108,570 for his method of slitting a side section, removing the lid and tying several coffee cans together to serve as a birdhouse. The rectangle slit on the side is pushed out to serve as a perch and an entrance for the birds. The bottom of one coffee can serves as the ceiling for the birdhouse below.

Other Significant Patents

A drying bag for pets after taking a bath, similar to a hair dryer for women, for which Robert E. Whitney and Jean L. Whitney of Minneapolis were granted patent 3,108,568.

A record player for playing both sides of a record without turning over the record, for which Jacob Rabinow of Rockville, Md., earned patent 3,108,812. Rights were assigned to the Rabinow Engineering Company, Inc., also of Rockville.

A simple, fast device for measuring the radioactivity in water, for which patent 3,109,099 was awarded to Ralph C. Maggio of Fort Lee, N. J., and Charles Christianson of New York. Patent rights were assigned to the Secretary of the Navy.

An agricultural process that retrieves the exhaust gases produced by a tractor engine while it is operating, reduces the gases to basic constituents, and applies at least one of the constituents to the plants. Kate T. Harris, administratrix of the estate of Marlin J. Harris, Jr., Mountain Creek, Ala., received U.S. patent 3,099,898.

• Science News Letter, 84:318 Nov. 16, 1963

Do You Know?

One aspirin tablet a day may kill a cat within a week.

A continuous wave laser system, pumped only by a tungsten bulb, has been developed.

Wool demands for 1964 are expected to be a record 3,401 million pounds.

An estimated 30 million pounds of aluminum will be used in modern U.S. railroad equipment this year.

Destructive fires took a toll of 11,800 lives and close to \$1.6 billion in property in 1962 in the U.S.

• Science News Letter, 84:318 Nov. 16, 1963